The Effect of Rheumatic Heart Disease Awareness on Primary School Students' Knowledge According to 100 Million Health Initiative

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Abstract

Background: Rheumatic Heart Disease Awareness is crucial, since rheumatic fever can be prevented from progressing to RHD, which can result in heart failure, stroke, and even death, early detection and treatment are essential. **Aim of the study:** Assessing the effect of Rheumatic Heart Disease Awareness on Primary School Students' Knowledge about Rheumatic Heart Disease. **Design:** A quasi-experimental research design was employed to achieve the aim of the study. **Subject:** (460) 6th grade Students participated in the study. **Setting:** the study was conducted in two primary schools which were located at Al-Mokattam area, Cairo, Egypt " Tarek Ibn Ziad and Khaled Ibn ElWalid" which was affiliated to " Educational Administration in Maadi, Middle Plateau ". **Tools of data collection:** Rheumatic heart Disease Knowledge Pre posttest was used. **Results:** post awareness, there was a highly statistically significant improvement in Rheumatic heart disease Knowledge level (p=0.001) among studied 6th grade primary school students. **Conclusion:** Rheumatic Heart Disease Awareness had a positive effect on rheumatic heart disease Knowledge among 6th grade primary school students. **Recommendations:** primary schools should apply Rheumatic Heart Disease Awareness to students to promote early detection disease prevention.

Key words: Primary school students, Rheumatic Heart Disease Awareness, 100 million Health Initiative.

Background

In Egypt, the "100 million health" initiative Supported by President El-Sisi and consisted of several presidential healthcare campaigns aimed at raising awareness of health issues and promoting early identification and treatment of non-communicable diseases (NCDs) including " Rheumatic Heart Disease", and Hepatitis C. Since its inception in 2018, the initiative has examined millions of people and offered free treatment to those who have been found to have the disease **(Ruan et al.,2023)**.

Rheumatic fever is considered an autoimmune inflammatory response to a throat infection (strep throat) and is the cause of rheumatic heart disease (RHD), a dangerous illness. Which is more common among young people under the age of 25 years old, it is the most prevalent acquired cardiac disease. Heart failure, stroke, and death are possible consequences of RHD, which mainly affects the heart valves **(Watkins et al.,2021)**.

Important facets of understanding rheumatic heart disease include recognizing its strong relationship with rheumatic fever, which is brought on by untreated strep throat infections, leading to RHD. Identifying symptoms of "Rheumatic Fever" is important, which could manifest as "fever, joint discomfort, and exhaustion" **(Tellawy et al.,2021)**. Over time, the heart valves may become irritated and scary. The heart valve may narrow or leak because of this. The heart finds it more difficult to function regularly as a result. Heart failure may result from this, identifying symptoms of Rheumatic

Heart Disease is important, it could be "chest pain, shortness of breath, edema, exhaustion, and irregular heartbeat". The Value of Prompt Intervention
Rheumatic fever and consequent RHD can be avoided by promptly diagnosing and treating strep throat with antibiotics. Focusing on vulnerable groups including people in low- and middle-income nations are disproportionately affected by RHD, especially those with poor access to healthcare.

Promoting education and awareness of Rheumatic Heat Disease through educational initiatives, community awareness campaigns, and awareness campaigns are vital to increase understanding and promote preventive measures **(Qazizadeh et al.,2021)**.

The diagnosis of rheumatic heart disease is made by examining the presence of Strep infections which are common in people with rheumatic heart disease or have recently occurred. To check for strep, a blood test or throat culture may be performed. During a standard physical examination, they might have a murmur. Which is caused by blood flowing around the broken valve. The inflammatory cardiac tissues moving or rubbing against one another is what causes the rub **(Nadeem & Saeed,2022)**.

In addition to a thorough medical history and physical examination, the following tests may be performed to identify rheumatic heart disease: an echocardiogram. This test examines the heart chambers and valves using sound waves. When a portable ultrasound probe (transducer) is moved over the skin around the heart, the echo sound waves produce an image on a screen. Echo can reveal cardiac enlargement, fluid surrounding the heart, damage to the valve flaps, and blood flowing backward through a leaking valve. It is the most effective test for identifying issues with the heart valves. For more in-depth photos, you may be given anesthesia, and the probe is placed into the throat (transesophageal echo or TEE) **(Manju Bhargav et al.,2025)**.

ECG stands for electrocardiogram. The electrical activity of the heart is measured in this test, along with its timing and intensity. It exhibits dysrhythmias or arrhythmias, which are irregular rhythms. Additionally, it occasionally detects damage to the heart muscle. Your skin is taped with tiny sensors to detect electrical activity. Also, chest X-ray can be used to examine lungs and determine whether heart is enlarged, an X-ray may be performed. MRI of the heart can be useful for diagnoses. This imaging test captures fine-grained images of the heart. It can be utilized to see the heart muscle and valves more precisely. Blood examinations are possible to check for inflammation and infection with certain blood tests. All previously mentioned diagnostic methods are for free in the line of 100 million health campaign in Egypt **(Lilyasari et al.,2020)**.

Preventing rheumatic fever is the best course of action. Antibiotics are frequently used to treat strep infections and prevent rheumatic fever. To lessen inflammation and the chance of heart damage, anti-inflammatory medications may be utilized. To treat heart failure, additional medications could be required. Patients with rheumatic fever are frequently treated with antibiotics on a daily or monthly basis. By following these, infections may not recur. Additionally, they can reduce the chance of further cardiac injury. Aspirin, steroids, or nonsteroidal anti-inflammatory medications (NSAIDs) may be administered to lessen inflammation **(Isezuo et al.,2023)**.

The extent of the heart valve damage determines the course of treatment. Surgery to replace or repair a severely damaged valve may be part of the treatment in extreme circumstances **(Hsiao et al.,2022)**. So, prevention through awareness, early detection and preventive services is preferable and required.

Research significance:

An estimated 55 million people worldwide suffer from rheumatic heart disease, which takes about 360 000 lives annually, with most of these deaths occurring in low- or middle-income nations. The illness is caused by damage to the heart valves by one or more bouts of rheumatic fever, an autoimmune inflammatory response to a group A streptococcal throat infection (streptococcal pharyngitis or strep

throat). It usually happens in childhood and can cause permanent impairment or death **(Haghaninejad et al.,2024).**

Rheumatic Heart Disease is a serious yet preventable community health problem. It is still common in sub-Saharan Africa, the Middle East (including Egypt), central and south Asia, the south Pacific, and among immigrants and elderly adults in high-income nations, particularly Indigenous peoples, even though it has been eradicated in many other parts of the world. Egypt magnetifies the necessity of delivering preventive healthcare services which is good for future generations **(Hooman et al.,2021).** In Egypt, 100 million Health initiative aims to educate citizens about healthy lifestyles and the importance of early detection and preventative care. It offers specific services and screenings for certain periods including rheumatic heart disease and rheumatic fever screening and treatment among school children as a free service **(Chelo et al,2020)**.

Studying the effect of Rheumatic Heart Disease Awareness on Primary School Students' Knowledge about Rheumatic Heart Disease has been studied in various research, pronouncing its special relevance in early detection and disease prevention **(Almadhi et al.,2021)**.

Preventing streptococcal infections by reducing poverty and raising living and housing conditions, or by promptly treating streptococcal infections with antibiotics when they do occur, can help avoid rheumatic heart disease **(Manju Bhargav et al.,2025)**.

Aim of the study:

This study aimed to examine the effect of Rheumatic Heart Disease Awareness on 6th grade primary school students' knowledge about Rheumatic Heart Disease through the following objectives:

1- Assessing 6th grade primary school students' knowledge about Rheumatic Heart Disease level.

2- Designing Rheumatic Heart Disease Awareness for 6th grade primary school students.

3- Implementing the designed awareness sessions.

4- Evaluating the effect of Rheumatic "Heart Disease Awareness "on Primary School Students' Knowledge about Rheumatic Heart Disease.

Research Hypothesis

The current study hypothesized that "Rheumatic Heart Disease Awareness" for 6th grade primary school students' will improve their knowledge level about RHD.

Methods

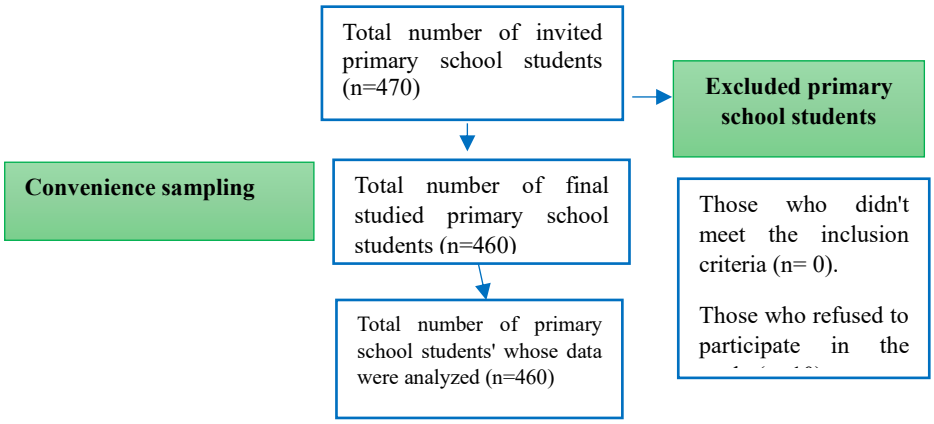
Study design: One group pretest- posttest quasi experimental research design was used to implement this study.

Study setting: The study was performed at two primary schools which were located at Al-Mokattam area, Cairo, Egypt " Tarek Ibn Ziad and Khaled Ibn ElWalid" which was affiliated to " Educational Administration in Maadi, Middle Plateau ".

Sampling: The G Power software was used to determine the sample size, which had a medium effect size, 0.04 alpha, and 0.97 power. The necessary sample size to carry out the present study was 450 primary school students and increased to 460 out of 465 for the possibility of attrition with response rate 100%. The sample included 6th grade students. A convenience sampling technique was utilized to involve participants from the previously mentioned settings.

Sample Criteria: Researchers included in the study all 6th grade primary school students in the current schools' settings, of both genders, and exclude those who attend previous training about Rheumatic Heart Disease.

A convenience sample of 460 6th grade primary school students in the current schools' settings, using a non-probability sampling technique, based on accessibility and availability. The sample represented the entire sample of selected setting (figure 2).



Instruments

Tool I: 6th grade primary school students' personal data. This part portrayed information on their demographic characteristics and housing factors, including age, gender, housing ventilation, water and electricity supply, number of sore throat times / year, and if diagnosed by Rheumatic Fever before.

Tool II: Rheumatic Heart Disease knowledge pre posttest: Developed by the researchers after reviewing literature of previous studies **(Haghaninejad et al.,2024; Almadhi et al.,2021& Chelo et al.,2020)**. It encompasses 20 multiple-choice form questions. The topics covered the following domains including "causes of RHD, risk factors, rheumatic fever symptoms, Symptoms of heart valve damage, treatment and prevention".

Each question was scored as "1" for a correct answer and "0" for an incorrect response. The total score for the questionnaire was 20 points. The cut off point was calculated using Receiver operating characteristic (ROC) Curve. The scoring system was categorized as follows: (less than 75%) were deemed unsatisfactory. (75% or higher) were considered satisfactory **(Ruan et al.,2023)**.

Pilot study:

Before starting study fieldwork, a pilot study involving (46) of 6th grade primary school students who were present at the study setting, which composed 10% of the total study sample. The pilot study aimed to assess the feasibility, practicality, and clarity of the language used in the tools of data collection. No modifications were required, so, the pilot study was included in the study.

Tool validity and reliability:

The first Arabic versions of the English tools were independently translated into Arabic by a professional multilingual translator. To verify semantic equivalency, the first researcher then translated these early Arabic versions back into English and contrasted them with the original instruments. This meticulous procedure sought to minimize differences between the original and translated tools while preserving the integrity of the translated versions.

The panel of the jury group looked at the face and content validity of the tools. Three professors and two assistant professors with expertise in community health nursing who worked at Tanta University's Faculty of Nursing, Helwan University, and Ain Shams University made up this group. The jury panel thoroughly reviewed the instruments to assess their correctness, comprehensiveness, and clarity. Their opinions were elicited about the tools layout, components and scoring system. According to jury opinions, the researchers modified minor items from the tools such as rephrasing some items and rearranging some items to be more accurate and clearer.

Data collection tools were assessed by their reliability through measuring their internal consistency by using Cronbach's Alpha Coefficient test. The value obtained was 0.90 for the Rheumatic Heart Disease pre posttest which

is considered excellent for demonstrating internal consistency reliability.

Ethical considerations:

The Research Ethics Committee (REC) at the Faculty of Nursing, Modern University for Technology and Information (MTI), had granted approval for the study. Also, an official letter outlining the study's title and objectives was sent from the Dean of the Faculty of Nursing to the schools' directors to secure authorization from the school administrators for data collection. Additionally, written consent for participation was obtained from parents or responsible adult persons of 6th grade primary school students after providing comprehensive information about the study.

Fieldwork:

The main data collection for the study took place between February 2025 and June 2025. The research process encompassed various phases including assessment, planning, implementation, evaluation, and follow-up to ensure comprehensive data collection and analysis. The study was carried out on the following phases in groups each group included from 50 to 60 students as classified in school class.

Phase I (Assessment Phase): During the assessment phase, the initial step involved administering pretests to assess 6th grade primary school students, using "tool I". Data collection occurred during participants' presence at schools, but not in the break as permitted by schools' authority. Researchers were available to offer guidance and clarification as needed and gathered the completed tools immediately after their completion. Completion time for pre posttest sheets ranged from 15 to 20 minutes for tools I & II. This phase of the study took about one month.

Phase II (Planning): The planning phase was prepared based on an analysis of the assessment phase results and relevant literature. Prior to starting the study, the content validity of the awareness sessions was assessed by estimating the content validity index (CVI). A panel of five experts, comprising five nursing academics holding doctorate degrees in community health nursing, participated in the validation process. The experts evaluated the clarity and relevance of the study materials and offered recommendations to enhance their quality. The resulting CVI for the study awareness sessions was determined to be 0.90, indicating strong content validity. The research team crafted awareness tailored to address the specific needs identified among 6th grade school students. The awareness sessions' content and teaching methods were meticulously chosen following a thorough assessment of these needs. Additionally, researchers designed the time schedule, teaching sessions, and selected appropriate media for instruction. The teaching methods encompassed lectures, discussions, and real-life examples, supplemented by visual aids such as data shows and handouts. This phase of awareness sessions development was completed within a span of two weeks.

Phase III (The educational awareness sessions implementation): Researchers implemented awareness sessions. All 6th grade school students attended one session per day for three days, with each session lasting one hour. They perceived the awareness sessions contents using teaching strategies and handout. Various teaching methods were used, including lectures, discussions, and brainstorming. Instructional materials consisted of awareness sessions booklet prepared by the researchers and distributed to all participants on the first day of the awareness sessions' implementation, in addition to PowerPoint presentation for awareness sessions. The awareness sessions addressed key topics related to causes of RHD, risk factors, rheumatic fever symptoms, Symptoms of heart valve damage, treatment and prevention. Awareness sessions were performed in the class room .The awareness sessions lasted for three months, running from the beginning of February to the end of April 2025.

Phase IV (Evaluation phase): In the evaluation phase, Tool II was used directly after the application of the awareness sessions to assess 6th grade students' knowledge levels about Rheumatic Heart Disease. During the follow-up phase, the identical process was replicated two

months later to assess the 6th grade students' knowledge progress over time.

Phase V (follow- up phase): At the follow-up time, a similar step as in the evaluation phase was applied two months later to reassess the 6th grade students' knowledge progress and retention. This comprehensive evaluation encompassed the administration of the same assessment tools utilized post-awareness sessions implementation. The aim was to identify any changes sustained in 6th grade students' knowledge. This follow-up assessment period also extended for one month,

Statistical Analysis:

The gathered data was carefully edited, coded, and arranged before being entered into IBM SPSS Statistics (version 26.0). We computed the mean and standard deviation (± SD) using parametric numerical data. To summarize the knowledge of sixth grade children across the three phases of awareness sessions—pre-awareness sessions, post-awareness sessions, and follow-up—frequencies and percentages were also calculated. To evaluate knowledge differences between two stages, chi-square tests (X2) were employed. P-values were used to show significant differences; $p \leq 0.05$ was deemed significant, while $p < 0.01$ was deemed very significant. The impact of Rheumatic Heart Disease Awareness on sixth-grade students' understanding of RHD was examined using linear regressions. Cronbach's alpha coefficient was used to assess the study's tool's reliability and determine internal consistency.

Results

Table 1 explains that the study sample consisted of 460 6th grade school students. The majority (87%) aged between 11 < 12 with a mean ± SD (11.33±1.45) and around two thirds (63%) are female. Additionally, all of them had water and electricity supply present in their homes and had health insurance services. More than half 56.5% had less than 5 times of sore throat per year. The majority (83.7 %) had not been diagnosed by rheumatic fever before.

As illustrated in table (2) Prior to awareness sessions implementation, only (6.5%) of studied 6th grade students had satisfactory total knowledge regarding Rheumatic Heart Disease. However, following the awareness sessions and at the follow-up phase, the majority (96.7 & 95.7%) respectively, had a high total satisfactory knowledge level. There was a significant and positive improvement in their knowledge levels related to all dimensions and total Rheumatic Heart Disease compared to pre-awareness levels ($P<0.001$).

Table 3 portrays that there was a statistically significant positive predictor from studied 6th grade students' knowledge about Rheumatic Heart Disease throughout awareness phases ($p = <0.00$).

Table (4) presents that there was a significant positive correlation between participants' knowledge about RHD and their age, and diagnosis of Rheumatic Fever throughout awareness phases ($P<0.001$).

Table (1): Personal data of subjects studied (n=460)

Personal data items	6th grade primary school students (n= 460)	
	No.	%
Age		
10 <11	20	4.3
11 < 12	400	87
12 ≤ 13	30	6.5
>13	10	2.2
Mean±SD	11.33±1.45	
Gender		
Male	170	37
Female	290	63
Housing conditions		
Good ventilation	440	95.7
Poor ventilation	20	4.3
Water and electricity supply present	460	100
Water and electricity supply not present	0	0
Number of sore throat times / year		
≥5 times	200	43.5
< 5 times	260	56.5
If diagnosed by Rheumatic Fever before		
Yes	75	16.3
No	385	83.7
Availability of health insurance services		
Yes	460	100
No	0	0

Table (2): 6th grade school students knowledge level about Rheumatic Heart Disease throughout awareness phases (n= 460).

Rheumatic Heart Disease Knowledge Dimensions	Satisfactory knowledge (≥ 75%)												Pre -post		Pre-Follow up	
	Pre- awareness				Post awareness				Follow up							
													χ2	P-value	χ2	P-value
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory					
	No.	%	No.	%	No	%	No	%	No	%	No	%				
Causes of RHD.	50	10.9	410	89.1	445	96.7	15	3.3	440	95.7	20	4.3	20.22	0.000**	23.21	0.000**
Risk factors of RHD.	44	9.6	416	90.4	455	98.9	5	1.1	450	97.8	10	2.2	21.35	0.001**	22.77	0.000**
Rheumatic Fever symptoms.	14	3	446	97	435	94.6	25	5.4	431	93.7	29	6.3	18.99	0.001**	20.27	0.000**
Symptoms of heart valve damage.	25	5.4	435	94.6	439	95.4	21	4.6	432	93.9	28	6.1	19.33	0.000**	20.01	0.000**
Prevention of RHD.	33	7.2	427	92.8	444	96.5	16	3.5	437	95	23	5	14.49	0.001**	27.77	0.000**
Treatment of RHD.	12	2.6	448	97.4	450	97.8	10	2.2	449	97.6	11	2.4	20.68	0.000**	26.11	0.000**
Total	30	6.5	230	93.5	445	96.7	15	3.3	440	95.7	20	4.3	18.59	0.001**	24.34	0.000**

*Significant at p ‹ 0.05 **highly significant at p ‹ 0.01.

Table (3): Simple linear regression for the effect of Rheumatic Heart Disease awareness on 6th grade school students' knowledge throughout awareness phases (n=460).

Model	6th grade school students' knowledge about RHD														
	Pre-awareness					Post awareness					Follow up awareness				
	Liner regression					Liner regression					Liner regression				
	B	R	R^2	Std. Error	t(sig)	B	r	R^2	Std. Error	t(sig)	B	r	R^2	Std. Error	t(sig)
(Constant) Total RHD knowledge among 6th grade school students'	.227	.226	**.09**	.129	2.962 (.03*)	.66	.91	**.83**	.043	0.667 (.000**)	.67	.93	**.87**	.037	5.833 (.000**)

Table (4): Correlation between demographic characteristics of 6th grade school students' and their knowledge about RHD (n=460).

Items		Rheumatic Heart Disease Knowledge level												Pre -post		Pre-Follow up	
		Pre- awareness				Post awareness				Follow up							
		Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		χ2	P-value	χ2	P-value
		No.	%	No.	%	No	%	No	%	No	%	No	%				
Age	10 <11	1	0.2	150	32.6	155	33.7	5	1.1	161	35	5	1.1	20.22	0.000**	38.42	0.000**
	11 < 12	10	2.2	50	10.9	130	28.3	5	1.1	120	26.1	5	1.1				
	12 ≤ 13	10	2.2	29	6.3	160	34.8	5	1.1	150	32.6	9	2				
	>13	9	2	1	0.2	10	0	0	0	9	2	1	0.2				
Gender	Male	15	3.3	100	21.7	185	40.2	5	1.1	185	40.2	8	1.7	0.94	0.63	0.90	0.62
	Female	15	3.3	130	28.3	270	58.7	10	2.2	255	55.4	12	2.6				
Number of sore throat times / year.	≥5 times	50	10.9	410	89.1	445	96.7	15	3.3	440	95.7	20	4.3	18.99	0.001**	20.27	0.000**
	< 5 times	44	9.6	416	90.4	455	98.9	5	1.1	450	97.8	10	2.2				
If diagnosed by Rheumatic Fever before.	Yes	14	3	446	97	435	94.6	25	5.4	431	93.7	29	6.3				
	No	25	5.4	435	94.6	439	95.4	21	4.6	432	93.9	28	6.1				
Availability of health insurance services.	Yes	33	7.2	427	92.8	444	96.5	16	3.5	437	95	23	5	0.93	0.62	0.98	0.60
	No	0	0	0	0	0	0	0	0	0	0	0	0				

*Significant at p ‹ 0.05.**highly significant at p ‹ 0.01.

NS (not significant or P>0.05).

Discission

Rheumatic Heart Disease is considered a major cause of disability and death among young age persons less than 25 years old especially in developed countries. **(Manju Bhargav, et al., 2025).** The present research had examined the effect of Rheumatic Heart Disease Awareness on Primary School Students' Knowledge about Rheumatic Heart Disease. Present results suggested a significant positive improvement in studied 6th grade students' knowledge levels related to all dimensions and total knowledge level of Rheumatic Heart Disease at post awareness and follow up phases compared to pre-awareness levels (P<0.001). From the researchers' point of view, this result was encouraging and ensured the importance of 6th grade students' awareness to ensure better health status and wellbeing.

Almadhi., et al., (2021) supported present results in their study titled " Rheumatic fever and rheumatic heart disease-related knowledge, attitude, and practice in Saudi Arabia ". They found that a significant improvement in students' knowledge post awareness resulted in higher levels of early detection. Also, the study conducted by **(Chelo et al.,2020)** entitled " Assessment of knowledge, attitudes and practices (KAP) on rheumatic heart disease among senior medical students in Cameroon. " supported present study results and declared that the majority of students had a high total satisfactory knowledge level post awareness implementation resulting in a significant improvement in their RHD knowledge.

Additionally**, (Haghaninejad et al.,2024)** supported present study results in their study entitled **"** Effect of Educational Intervention on Awareness, Attitude, and Practices of Mothers Regarding the Prevention of Rheumatic Fever: A Quasi-Experimental Study" and found the same results.

Rheumatic Heart Disease awareness among primary school students could help in creating positive healthcare knowledge and contribute to increased students' satisfaction. Present study results portray that there was a statistically significant positive predictor from studied 6th grade students' knowledge about Rheumatic Heart Disease throughout awareness phases (p = <0.00). From the researchers' opinion, school environment permits this Rheumatic Heart Disease awareness to be easy. As students come to school for the main purpose of acquiring new learning experience. Present results were in the same line with the results of **(Hooman, et al., 2021)** in their study about " Investigating the level of awareness, practice, and attitude of parents of children with congenital heart disease in Kermanshah city " they reported that participants' Rheumatic Heart Disease knowledge had improved significantly post awareness and is positively correlated to the practice, and attitude of parents of children with congenital heart disease.

Additionally, **(Hsiao et al.,2022)** in a study titled " Impact of an educational program on improving nurses' management of fever: an experimental study" supported present results and ensured that there is a significant improvement in knowledge level regarding rheumatic fever post program implementation. Also, the study conducted by **(Isezuo et al.,2025)** titled " Knowledge, attitude, and practice regarding prevention of rheumatic heart disease among primary health-care workers in Sokoto Metropolis, Sokoto State, Nigeria" asserted the same results as present study.

Present study results ensured that presents that there was a significant positive correlation between participants' knowledge about RHD and their age, and previous diagnosis of Rheumatic Fever throughout awareness phases (P<0.001). Previous study performed by **(Lilyasari et al.,2020)** entitled " Clinical profile and management of rheumatic heart disease in children and young adults at a tertiary cardiac center in Indonesia." supported present study results. They found that positive correlation between participants' knowledge about RHD and their age, and previous diagnosis of Rheumatic Fever . Also, **(Manju Bhargav et al.,2025)** in their study titled " Prevention and Control of Rheumatic Fever in India: An Achievable Health Target " reported statistically significant improvement in participants' perception of Prevention and Control of Rheumatic Fever and a strong positive correlation between perception of Prevention and Control of Rheumatic Fever, their age, and previous diagnosis of Rheumatic

Fever . Additionally, **(Nadeem & Saeed,2022)** in their study about " Awareness, knowledge and attitudes of Saudi population regarding common rheumatic diseases " declared that (70%) of participants had high perception related to RHD post awareness and is positively correlated to their age and previous Rheumatic Fever disease.

Present results portrayed that prior to awareness sessions implementation, a very small percent of studied 6th grade students had satisfactory total knowledge regarding Rheumatic Heart Disease. However, following the awareness sessions and at the follow-up phase, the majority had a high total satisfactory knowledge level. **(Qazizadeh et al.,2021)** in a study titled " Prevalence of rheumatic heart disease in Iran " reported the same results but, the awareness sessions was introduced and treated as an independent variable. **(Ruan et al.,2023)** who studied " Global, regional, and national advances toward the management of rheumatic heart disease based on the Global Burden of Disease Study " showed that the Rheumatic Heart Disease awareness has a positive and significant relationship with participants' knowledge, attitude and perception. On the other hand, **(Tellawy** et al., **2021)** who conducted a study about **"** Parents' knowledge and attitudes toward rheumatic heart disease in Saudi Arabia " contrasted present study results when found that Rheumatic Heart Disease knowledge becomes statistically insignificant with an increase in the R-square by 0.067 ($p < 0.001$).

Conclusion

In the light of present research findings, it can be concluded that Prior to awareness sessions implementation, only a small percent of studied 6th grade students had satisfactory total knowledge regarding Rheumatic Heart Disease. However, following the awareness sessions and at the follow-up phase, the majority, had a high total satisfactory knowledge level. There was a significant and positive improvement in their knowledge levels related to all dimensions and total Rheumatic Heart Disease compared to pre-awareness levels ($P<0.001$).

Recommendations

Based on the current study findings, the following recommendations were suggested:

Community Healthcare Organizations should:

- Provide school students with awareness sessions regularly about Rheumatic Heart Disease as a part of their community services.
- Afford adequate resources and financial support to provide Rheumatic Heart Disease awareness.

Community health nurses should:

- Participate in community campaigns for early detection of Rheumatic Heart Disease.
- Participate in conferences and workshops related to Rheumatic Heart Disease.
- Be aware of signs and symptoms of Rheumatic Heart Disease and practice their community roles regarding managing it.

Educational organizations should:

- Introduce Rheumatic Heart Disease into school education.
- Furthers studies**:**
- The effect of Rheumatic Heart Disease on school students.

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